

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions, and listings, of claims in the application:

1. (Currently Amended) A core structure of an integral heat-exchanger, comprising:
at least two first heat exchanger tubes which extend in parallel with each other;
at least two second heat exchanger tubes which extend in parallel with each other,
wherein the two second heat exchanger tubes are juxtaposed with the first heat exchanger tubes; and
a corrugated fin including a corrugated first part interposed between said first heat exchanger tubes, a corrugated second part interposed between said second heat exchanger tubes, and a flat connection part arranged between the corrugated first and second parts,
wherein said corrugated first part of the fin is formed with a plurality of first louvers each extending substantially between the two first heat exchanger tubes,
wherein said corrugated second part of the fin is formed with a plurality of second louvers each extending substantially between the two second heat exchanger tubes, wherein an innermost one of said second louvers is positioned away from an innermost end of said corrugated second part of the fin by a given length,
wherein said flat connection part is formed with a third louver ~~in the vicinity of~~ positioned closer to an innermost one of said first louvers than to the innermost one of said second louvers,
wherein said third louver is constructed to obstruct a heat transfer in the fin,
and
wherein ~~the~~ said third louver is positioned substantially across the width of ~~the~~ said flat connection part.

2. (Previously Presented) A core structure as claimed in Claim 1, wherein said first louvers and second louvers are constructed to improve a heat radiation of the fin, and wherein each of said first, second, and third louvers extends in a direction perpendicular to the direction in which air flows.

3. (Cancelled)

4. (Previously Presented) A core structure as claimed in Claim 1, wherein said second heat exchanger tubes are located behind said first heat exchanger tubes with respect to a direction in which air flows.

5. (Previously Presented) A core structure as claimed in Claim 4, wherein said first heat exchanger tubes and said corrugated first part of the fin are adapted to act at a lower temperature, and wherein said second heat exchanger tubes and said corrugated second part of the fin are adapted to act at a higher temperature.

6. (Previously Presented) A core structure as claimed in Claim 5, said first heat exchanger tubes are arranged to have a refrigerant of an automotive air conditioner flow therethrough, and wherein said second heat exchanger tubes are arranged to have an engine cooling water flow therethrough.

7. (Currently Amended) A core structure of an integral heat-exchanger, comprising:

at least two first heat exchanger tubes which extend in parallel with each other;

at least two second heat exchanger tubes which extend in parallel with each other,

wherein the two second heat exchanger tubes are juxtaposed with the first heat exchanger tubes; and

a corrugated fin including a corrugated first part interposed between said first heat exchanger tubes, a corrugated second part interposed between said second heat exchanger tubes, and a flat connection part arranged between the corrugated first and second parts,

wherein said corrugated first part of the fin is formed with a plurality of first louvers each extending substantially between the two first heat exchanger tubes,

wherein said corrugated second part of the fin is formed with a plurality of second louvers each extending substantially between the two second heat exchanger tubes, wherein an innermost one of said second louvers is positioned away from an innermost end of said corrugated second part of the fin by a given length,

wherein said flat connection part is formed with a third louver in the vicinity of an innermost one of said first louvers, wherein said third louver is constructed to obstruct a heat transfer in the fin,
wherein ~~the~~ said third louver is positioned substantially across the width of the flat connection part,
wherein the distance between said third louver and the innermost end of said corrugated second part of the fin is less than 12 mm, and
wherein said given length is greater than a pitch at which said second louvers are arranged.

8. (Currently Amended) A core structure of an integral heat-exchanger, comprising:
at least two first heat exchanger tubes which extend in parallel with each other;
at least two second heat exchanger tubes which extend in parallel with each other,
wherein the two second heat exchanger tubes are juxtaposed with the first heat exchanger tubes; and
a corrugated fin including a corrugated first part interposed between said first heat exchanger tubes, a corrugated second part interposed between said second heat exchanger tubes, and a flat connection part arranged between the corrugated first and second parts,
wherein said corrugated first part of the fin is formed with a plurality of first louvers each extending substantially between the two first heat exchanger tubes,
wherein said corrugated second part of the fin is formed with a plurality of second louvers each extending substantially between the two second heat exchanger tubes, wherein an innermost one of said second louvers is positioned away from an innermost end of said corrugated second part of the fin by a given length,
wherein said flat connection part is formed with a third louver in the vicinity of an innermost one of said first louvers, wherein said third louver is constructed to obstruct a heat transfer in the fin,
wherein ~~the~~ said third louver is positioned substantially across the width of the flat connection part, and

wherein the length between ~~the~~ said third louver and ~~the~~ said innermost one of said second louvers is substantially equal to the length of said flat connection part of said fin.

9. (Currently Amended) A core structure as claimed in ~~Claim 1~~, Claim 8, wherein a front cluster including said first louvers and said third louver and a rear cluster including said second louvers are arranged symmetrically with respect to said flat connection part of said fin.

10. (Previously Presented) A core structure as claimed in Claim 9, wherein a center line of said corrugated fin is located in a center portion of said flat connection part.

11. (Currently Amended) A core structure ~~as claimed in Claim 1~~, of an integral heat-exchanger, comprising:

at least two first heat exchanger tubes which extend in parallel with each other;

at least two second heat exchanger tubes which extend in parallel with each other,

wherein the two second heat exchanger tubes are juxtaposed with the first heat exchanger tubes; and

a corrugated fin including a corrugated first part interposed between said first heat exchanger tubes, a corrugated second part interposed between said second heat exchanger tubes, and a flat connection part arranged between the corrugated first and second parts,

wherein said corrugated first part of the fin is formed with a plurality of first louvers each extending substantially between the two first heat exchanger tubes,

wherein said corrugated second part of the fin is formed with a plurality of second louvers each extending substantially between the two second heat exchanger tubes, wherein an innermost one of said second louvers is positioned away from an innermost end of said corrugated second part of the fin by a given length,

wherein said flat connection part is formed with a third louver in the vicinity of an innermost one of said first louvers,

wherein said third louver is constructed to obstruct a heat transfer in the fin,

wherein said third louver is positioned substantially across the width of said flat connection part, and

wherein the width of the first heat exchanger tubes is different from that of the second heat exchanger tubes.

12. (Cancelled)

13. (Withdrawn) A core structure of an integral heat-exchanger, comprising:
at least two first heat exchanger tubes which extend in parallel with each other;
at least two second heat exchanger tubes which extend in parallel with each other,
wherein said second heat exchanger tubes are juxtaposed with said first heat exchanger tubes; and
a corrugated fin including a corrugated first part interposed between said first heat exchanger tubes, a corrugated second part interposed between said second heat exchanger tubes, and a flat connection part arranged between the corrugated first and second parts,
wherein said corrugated first part of the fin is formed with a plurality of first louvers each extending substantially between said first heat exchanger tubes,
wherein said corrugated second part of the fin is formed with a plurality of second louvers each extending substantially between said second heat exchanger tubes,
wherein said flat connection part is formed with a plurality of heat radiation portions, wherein each radiation portion is constructed not to deteriorate the heat transfer in the fin substantially,
wherein the heat radiation portions are staggered, and
wherein said heat radiation portions are auxiliary louvers, and wherein each auxiliary louver is smaller in size than each of the first and second louvers.

14 – 25. (Cancelled)

26. (Withdrawn) A core structure as claimed in Claim 1, in which the distance between said third louver and the innermost one of said first louvers is greater than the distance between adjacent two of said first louvers, said first louvers being arranged at a constant pitch.

27. (Withdrawn) A core structure as claimed in Claim 11, in which the number of louvers provided in a front cluster including said first louvers and said third louver is different from that of the louvers provided in a rear cluster including said second louvers.

28. (Cancelled)

29. (Withdrawn) A core structure as claimed in Claim 28, wherein each of said auxiliary louvers extends in a direction perpendicular to the direction in which air flows.

30. (Withdrawn) A core structure as claimed in Claim 13, in which said heat radiation portions are projections integrally formed on the flat connection part of the corrugated fin.

31. (Withdrawn) A core structure as claimed in Claim 13, in which said heat radiation portions are raised parts which are formed by cutting and raising the cut portions.

32. (Withdrawn) A core structure as claimed in Claim 13, in which the distance between the innermost one of said corrugated first part of the fin and the innermost one of said corrugated second part of the fin is less than 12 mm.

33. (Withdrawn) A core structure as claimed in Claim 1, wherein the number of louvers provided in a front cluster which includes said first louvers and said third louver is different than the number of louvers provided in a rear cluster which includes said second louvers, wherein said flat connecting part of the corrugated fin is formed with a plurality of heat radiation portions which are located closer to the corrugated second part than the corrugated first part, and wherein each radiation portion is constructed not to deteriorate the heat transfer in the fin substantially.

34. (Withdrawn) A core structure as claimed in Claim 33, in which said heat radiation portions are auxiliary louvers, each auxiliary louver being smaller in size than each of the first, second and third louvers.

35. (Withdrawn) A core structure as claimed in Claim 34, in which each of said auxiliary louvers extends in a direction perpendicular to the direction in which air flows.

36. (Withdrawn) A core structure as claimed in Claim 33, in which said heat radiation portions are projections integrally formed on the flat connection part of the corrugated fin.

37. (Withdrawn) A core structure as claimed in Claim 33, in which said heat radiation portions are raised parts which are formed by cutting and raising the cut portions.

38. (Withdrawn) A core structure as claimed in Claim 33, in which the distance between the innermost one of said corrugated first part of the fin and the innermost one of said corrugated second part of the fin is less than 12 mm.